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ABSTRACT

This demonstration study examines the affective reactions of infants when they imitate or fail to imitate play behavior modeled by an adult. Subjects were twenty-four 18-month-old and twenty-four 24-month-old male and female infants. Each infant visited the laboratory twice with an inter-session interval of 48 hours. At each session, the infant engaged in 10 minutes of free play amid an array of 23 objects and then was asked to watch an adult play with the objects. The adult either scattered the objects or formally modeled three acts. Ten minutes of free play followed the last modeled act. Distress behaviors (fretting-crying and attempts to leave), language, and imitation of one or more of the modeled acts were recorded. Results indicated a substantial increase in distress for those subjects who failed to imitate. Distress decreased for those subjects who imitated. Distress did not occur when the infant imitated at least one act and rarely occurred when the children who observed the modeled acts were younger than 15 months or older than 30 months of age. Further, 50% of the 24-month-old children showed deferred imitation over the 48-hour interval between sessions by imitating in the second session acts modeled in the first. These results are discussed briefly in terms of the child's development of standards. (Author/RH)

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The Consequences of Failing to Imitate

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Abstract

Infants (18 and 24 months old) either imitated or failed to imitate several modeled acts. Infants who failed to imitate displayed a high level of distress; whereas, those who imitated showed a reduction in distress. These results were discussed in terms of the child's development of standards.

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Kagan and his associates have suggested that a state of uncertainty occurs when a child encounters a discrepant event or recognizes an inconsistency between a standard and behavior and between 2 standards. If the child fails to resolve the uncertainty s/he will typically become distressed. Distress may be inferred from 2 rather unambiguous behaviors, (1) Fretting or crying and (2) Attempts to leave the room.

Recent Demonstration studies performed in Kagan's and our lab suggest that by the latter half of the 2nd year of life infants tend to react to the actions of an adult model with distress. This distress typically occurs when the infant fails to imitate the modeled acts. For children as young as 15 months or as old as 30 months the distress reaction is rare.

Our interpretation of these results are that during the 2nd year of life the infant becomes mature enough to assume that if an adult invites her/him to watch her/him play, the infant considers it an obligation to play like the adult -- that is, to repeat the model's actions. Furthermore, the infant evaluates the relation between the standard (the representation of the act modeled) and the representation that describes her/his own competence to perform the act.

In summary, we suggest that distress follows failure to imitate, when the infant is old enough to recognize her/his inability to meet the standard, but has not as yet learned how to cope with failure.

As I mentioned earlier - we have demonstrated that children younger than 15 months or older than 30 months rarely display signs of distress. The younger cohorts fail to imitate but seem unconcerned; whereas the older subjects consistently imitate our model's behavior and therefore have no reason to be distressed.

These demonstrations suggest that the transition period is between 18 and 24 months of age i.e., the time in which infants begin to recognize their inability to meet a standard; one year later they'll either demonstrate competence or will have learned to cope with incompetence. The present study was devised to examine the affective reactions of infants in transition by observing their behaviors when they imitate or fail to imitate the actions of an adult model.

Method

Procedure. The subject were 24, 18-month-old and 24, 24-month-old infants from Winston-Salem, North Carolina. Their parents' average education level was 16.2 years. Half the infants were boys and half were girls.

Twenty-three objects were placed in the center of a large carpeted room. Eighteen of the objects were wooden: 3 circles, 2 squares, 3 rectangles and 10 different nonsense shapes. These objects ranges in diameter from 8-32 cm and were painted tan, white, black, red or green. A green tin can, a yellow bucket, a yellow and a white washcloth and a red shoe box were also present.

Each infant visited the laboratory twice with an inter-session interval of 48 hours. The mother and the model accompanied the infant into the room. After 10 minutes of free play with the 23 objects, the infant was asked to watch the model play while sitting in her/his mother's lap. For half the infants, the model played with the objects in a random manner (scatter) in Session 1 and modeled three different acts in Session 2. The remaining subjects observed formal modeling in Session 1 and scatter in Session 2.

Scatter consisted of the model picking up 3 different stimuli, shuffling them on the floor and then repeating this behavior twice more with two different sets of 3 stimuli.

Formal modeling for our 18 month olds consisted of the three acts: (1) Baby talks on phone, (2) Doll rides horse, (3) Pig puts hat on. For our 24 month olds the 3 acts were: (1) Baby talks on phone, (2) Doll cooks, serves, eats, (3) 3 animals walk, it rains, they hide. Ten minutes of free play followed the last modeled act. An observer located behind a one-way mirror recorded the infant's "distress" behaviors (crying-fretting and attempts to leave) language and whether the infant imitated 0, 1, 2, or 3 of the modeled acts. During the 10 minutes prior and the 10 minutes subsequent to modeling, the mother and model sat at opposite ends of the room engaged in a casual conversation.

Results

The primary analysis of the study was the combined fretting-crying and attempts to leave scores during the last 5 minutes of premodeling and the first 5 minutes of postmodeling for infants who imitated and those who failed to imitate. Following imitation, 43% of the infants showed a lower post- than premodeling distress score and only 19% showed an increase in distress; however, 41% of the infants who failed to imitate showed more distress during post- than premodeling and only 23% showed a lower distress score during postmodeling.

In summary, when comparing the distress of infants who imitated with those who failed to imitate, we note that a greater percent of the former decreased than increased their pre- to post modeling level of distress; whereas, the opposite was true for the infants who failed to imitate.

Insert Table 1

Our parametric analysis clearly supports the finding that infants' affective behaviors are at least partially determined by whether or not they imitate the model. There was a substantial increase in distress from the last 5 minutes of premodeling to the first 5 minutes of post-modeling ($\bar{X}$ = +1.00) for those subjects who failed to imitate; whereas, distress actually decreased ($\bar{X}$ = -.73) for those subjects who imitated. A 2(24 vs. 18 months) x 2 (fail to imitate vs. imitators) analysis of variance performed on the distress scores for the last 5 minutes of postmodeling showed that the imitation main effect was statistically significant, $F(1, 44) = 6.36$, $p < .025$. The age and age x imitation effect were nonsignificant, $ps > .10$.

A similar 2 x 2 analysis of variance performed on the distress measure on the scatter day showed nonsignificant age, imitation and age x imitation effects $ps > .10$ (the imitation score recorded on the modeling day served to classify the infant as an imitator or nonimitator). Since "distress" scores on the scatter day (the first 5 minutes prior to random sorting minus the last 5 minutes following random sorting) of the infants who imitated on the modeling day did not differ from the infants who failed to imitate, we can assume that the "distress" effects found on the modeling day were not simply due to our model unexpectedly interrupting the infant's play

In summary, these results reveal that during the later part of the 2nd year of life, infants show considerable distress when they fail to imitate coherent modeled acts. Since distress did not occur when the model simply scattered the stimuli, we can assume that interruption of play was not an incentive for distress.

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Furthermore, distress does not occur when the infant imitates at least one act and rarely occurs when the children who observe our modeled acts are younger than 15 months or older than 30 months of age. One interrpretation of these results is that between 18 and 24 months old infants begin to establish standards regarding competent performance. We suggest that during the later half of the 2nd year, infants' assume an obligation to imitate modeled acts. If they fail to imitate because they don't completely understand the modeled behavior, because they can't recall the details of the acts modeled or because they are unsure of their ability to repeat the acts, they will recognize their behavior as incompetent; and, if they haven't learned to cope with this uncertainty, they'll show signs of distress. It is also reasonable to assume that once standards are established (by 24 months) task difficulty and achievement pressures may be increased to such a degree that failure during the preschool period will lead to distress.

One additional finding should be noted. Twenty-four children were administered random sorting in Session 2 and modeled acts in Session 1. Six of the 24 children displayed deferred imitation by imitating one or more of the acts modeled in Session 1, 48 hours later in Session 2. All of these children were 24 months old. That is, 50% of the 24 month-old-children showed deferred imitation whereas none of the 18 month olds performed similarly. Furthermore, 2 of these children imitated the Session 1 modeled acts during Session 2 (the scatter day) but not in session 1 (modeling day). These children showed a marked increase in distress from pre- to postmodeling on the day they experienced modeling and failed to imitate but showed a marked descrease in distress from pre- to postnonmodeling (scattering) in Session 2 where deferred imitation was noted (the pre- to postmodeling distress scores in Session 1, modeling day, = +2.0 and in Session 2, random sorting day, = -2.5).

Table 1

Mean Number of Negative Emotional Responses During the First Five of the Post-Modeling Sussions.

Child's Age in Months	Number of Acts Imitated		
	2	1	0
17-18	4.75	4.17	8.30
23-24	2.75	5.55	8.33
Total Means	4.08	5.08	8.32

The mean negative affect score during the first 5 minutes of Post-Nonmodeling = 6.18

The mean negative affect score during the last 5 minutes of Pre-Modeling = 5.89.

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